

## RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.

Application Serial Number: 10/572,563  
Source: 1 Fwp  
Date Processed by STIC: 3/19/07

# ***ENTERED***



IFWO

## RAW SEQUENCE LISTING

DATE: 03/19/2007

PATENT APPLICATION: US/10/572,563

TIME: 11:22:10

Input Set : E:\2007-03-13 0269\_seq list\_20070308.txt

Output Set: N:\CRF4\03192007\J572563.raw

3 <110> APPLICANT: YEASTERN BIOTECH CO., LTD

5 <120> TITLE OF INVENTION: A FUNGAL IMMUNOMODULATORY PROTEIN (FIP) PREPARED BY MICROORGANISMS

6 AND USES THEREOF

8 <130> FILE REFERENCE: PCT/CN2004/001044

10 <140> CURRENT APPLICATION NUMBER: US 10/572,563

11 <141> CURRENT FILING DATE: 2006-03-17

13 <150> PRIOR APPLICATION NUMBER: PCT/CN2004/001044

14 <151> PRIOR FILING DATE: 2004-09-14

16 <150> PRIOR APPLICATION NUMBER: US 60/503,547

17 <151> PRIOR FILING DATE: 2003-09-17

19 <160> NUMBER OF SEQ ID NOS: 15

21 <170> SOFTWARE: PatentIn version 3.3

23 <210> SEQ ID NO: 1

24 <211> LENGTH: 336

25 <212> TYPE: DNA

26 <213> ORGANISM: Ganoderma lucidium

29 <220> FEATURE:

30 <221> NAME/KEY: variation

31 <222> LOCATION: (1)..(336)

32 <223> OTHER INFORMATION: improved DNA sequence of G. lucidium FIP for expressing in yeast,

33 FIP-yeast

35 <400> SEQUENCE: 1

36 atgtctgata ctgctttgat tttcagattg gcttgggatg ttaagaagtt gtctttcgat	60
38 tacactccaa actggggtag aggtaaccga aacaacttca ttgatactgt tactttccca	120
40 aagggttttga ctgataaggc ttacacttac agagtgtctg tttctggtag aaacttgggt	180
42 gttaagccat cttacgctgt tgaatctgat gggtctcaaa aggttaactt cttggaatac	240
44 aactctgggt acggtattgc tgatactaac actattcaag ttttcgttgt tgatccagat	300
46 actaacaacg atttcattat tgctcaatgg aactga	336

49 <210> SEQ ID NO: 2

50 <211> LENGTH: 336

51 <212> TYPE: DNA

52 <213> ORGANISM: Ganoderma lucidium

55 <220> FEATURE:

56 <221> NAME/KEY: gene

57 <222> LOCATION: (1)..(336)

58 <223> OTHER INFORMATION: original FIP codon, FIP-lz

60 <400> SEQUENCE: 2

61 atgtccgaca ctgccttgat cttcaggctc gcctgggacg tgaagaagct ctcgttcgac	60
63 tacaccccgga actggggccg cggcaacccc aacaacttca tcgacactgt caccttcccg	120
65 aaagtcttga ccgacaaggc gtacacgtac cgcgtcgccg tctccggacg gaacctcggc	180
67 gtgaaaccct cgtacgcggt cgagagcgac ggctcgcaga aggtcaactt cctcgagtac	240
69 aactccgggt atggcatagc ggacacgaac acgatccagg tggtcgttgt cgaccccgac	300

71 accaacaacg acttcatcat cgcccagtgg aactag

336 -

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74 <210> SEQ ID NO: 3
75 <211> LENGTH: 40
76 <212> TYPE: DNA
77 <213> ORGANISM: Artificial
79 <220> FEATURE:
80 <223> OTHER INFORMATION: primer
83 <220> FEATURE:
W--> 84 <221> NAME/KEY: primer
85 <222> LOCATION: (1)..(40)
86 <223> OTHER INFORMATION: forward primer of FIP-yeast
88 <400> SEQUENCE: 3
89 aaaaaaaaaa ggatcccgca atgtctgata ctgctttgat 40
92 <210> SEQ ID NO: 4
93 <211> LENGTH: 41
94 <212> TYPE: DNA
95 <213> ORGANISM: Artificial
97 <220> FEATURE:
98 <223> OTHER INFORMATION: primer
101 <220> FEATURE:
W--> 102 <221> NAME/KEY: primer
103 <222> LOCATION: (1)..(41)
104 <223> OTHER INFORMATION: reverse primer of FIP-yeast
106 <400> SEQUENCE: 4
107 aaaaaaaaaa acacgtgtca actagttagt tccattgagc a 41
110 <210> SEQ ID NO: 5
111 <211> LENGTH: 41
112 <212> TYPE: DNA
113 <213> ORGANISM: Artificial
115 <220> FEATURE:
116 <223> OTHER INFORMATION: primer
119 <220> FEATURE:
W--> 120 <221> NAME/KEY: primer
121 <222> LOCATION: (1)..(41)
122 <223> OTHER INFORMATION: forward primer of FIP-lz
124 <400> SEQUENCE: 5
125 aaaaaaaaaa ggatcccgca atgtccgaca ctgccttgat c 41
128 <210> SEQ ID NO: 6
129 <211> LENGTH: 42
130 <212> TYPE: DNA
131 <213> ORGANISM: Artificial
133 <220> FEATURE:
134 <223> OTHER INFORMATION: primer
137 <220> FEATURE:
W--> 138 <221> NAME/KEY: primer
139 <222> LOCATION: (1)..(42)
140 <223> OTHER INFORMATION: reverse primer of FIP-lz
142 <400> SEQUENCE: 6
143 aaaaaaaaaa acacgtgtca actagttagt tccctagttc ca 42
146 <210> SEQ ID NO: 7

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147 <211> LENGTH: 111
148 <212> TYPE: PRT
149 <213> ORGANISM: Ganoderma lucidum
152 <220> FEATURE:
153 <221> NAME/KEY: PEPTIDE
154 <222> LOCATION: (1)..(111)
155 <223> OTHER INFORMATION: FIP amino acid sequence
157 <400> SEQUENCE: 7
159 Met Ser Asp Thr Ala Leu Ile Phe Arg Leu Ala Trp Asp Val Lys Lys
160 1 5 10 15
163 Leu Ser Phe Asp Tyr Thr Pro Asn Trp Gly Arg Gly Asn Pro Asn Asn
164 20 25 30
167 Phe Ile Asp Thr Val Thr Phe Pro Lys Val Leu Thr Asp Lys Ala Tyr
168 35 40 45
171 Thr Tyr Arg Val Ala Val Ser Gly Arg Asn Leu Gly Val Lys Pro Ser
172 50 55 60
175 Tyr Ala Val Glu Ser Asp Gly Ser Gln Lys Val Asn Phe Leu Glu Tyr
176 65 70 75 80
179 Asn Ser Gly Tyr Gly Ile Ala Asp Thr Asn Thr Ile Gln Val Phe Val
180 85 90 95
183 Val Asp Pro Asp Thr Asn Asn Asp Phe Ile Ile Ala Gln Trp Asn
184 100 105 110
187 <210> SEQ ID NO: 8
188 <211> LENGTH: 111
189 <212> TYPE: PRT
190 <213> ORGANISM: Ganoderma tsugae
193 <220> FEATURE:
194 <221> NAME/KEY: PEPTIDE
195 <222> LOCATION: (1)..(111)
196 <223> OTHER INFORMATION: FIP amino acid sequence
198 <400> SEQUENCE: 8
200 Met Ser Asp Thr Ala Leu Ile Phe Arg Leu Ala Trp Asp Val Lys Lys
201 1 5 10 15
204 Leu Ser Phe Asp Tyr Thr Pro Asn Trp Gly Arg Gly Asn Pro Asn Asn
205 20 25 30
208 Phe Ile Asp Thr Val Thr Phe Pro Lys Val Leu Thr Asp Lys Ala Tyr
209 35 40 45
212 Thr Tyr Arg Val Ala Val Ser Gly Arg Asn Leu Gly Val Lys Pro Ser
213 50 55 60
216 Tyr Ala Val Glu Ser Asp Gly Ser Gln Lys Val Asn Phe Leu Glu Tyr
217 65 70 75 80
220 Asn Ser Gly Tyr Gly Ile Ala Asp Thr Asn Thr Ile Gln Val Phe Val
221 85 90 95
224 Val Asp Pro Asp Thr Asn Asn Asp Phe Ile Ile Ala Gln Trp Asn
225 100 105 110
228 <210> SEQ ID NO: 9
229 <211> LENGTH: 113
230 <212> TYPE: PRT
231 <213> ORGANISM: Flammulina velutipes

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234 <220> FEATURE:  
 235 <221> NAME/KEY: PEPTIDE  
 236 <222> LOCATION: (1)..(113)  
 237 <223> OTHER INFORMATION: FIP amino acid sequence  
 239 <400> SEQUENCE: 9  
 241 Ser Ala Thr Ser Leu Thr Phe Gln Leu Ala Tyr Leu Val Lys Lys Ile  
 242 1 5 10 15  
 245 Asp Phe Asp Tyr Thr Pro Asn Trp Gly Arg Gly Thr Pro Ser Ser Tyr  
 246 20 25 30  
 249 Ile Asp Asn Leu Thr Phe Pro Lys Val Leu Thr Asp Lys Lys Tyr Ser  
 250 35 40 45  
 253 Tyr Arg Val Val Val Asn Gly Ser Asp Leu Gly Val Glu Ser Asn Phe  
 254 50 55 60  
 257 Ala Val Thr Pro Ser Gly Gly Gln Thr Ile Asn Phe Leu Gln Tyr Asn  
 258 65 70 75 80  
 261 Lys Gly Tyr Gly Val Ala Asp Thr Lys Thr Ile Gln Val Phe Val Val  
 262 85 90 95  
 265 Pro Asp Thr Gly Asn Ser Glu Glu Tyr Ile Ile Ala Glu Trp Lys Lys  
 266 100 105 110  
 269 Thr

273 <210> SEQ ID NO: 10  
 274 <211> LENGTH: 49  
 275 <212> TYPE: DNA  
 276 <213> ORGANISM: Artificial  
 278 <220> FEATURE:  
 279 <223> OTHER INFORMATION: primer  
 282 <220> FEATURE:

W--> 283 <221> NAME/KEY: primer  
 284 <222> LOCATION: (1)..(49)  
 285 <223> OTHER INFORMATION: forward primer of FIP  
 287 <400> SEQUENCE: 10  
 288 aaaaactcga gaaaagagag gctgaagcta tgtccgacac tgccttgat 49

291 <210> SEQ ID NO: 11  
 292 <211> LENGTH: 31  
 293 <212> TYPE: DNA  
 294 <213> ORGANISM: Artificial  
 296 <220> FEATURE:  
 297 <223> OTHER INFORMATION: primer  
 300 <220> FEATURE:

W--> 301 <221> NAME/KEY: primer  
 302 <222> LOCATION: (1)..(31)  
 303 <223> OTHER INFORMATION: reverse primer of FIP  
 305 <400> SEQUENCE: 11  
 306 aaaaacacgt gtcaactagt tagttccatt g 31

309 <210> SEQ ID NO: 12  
 310 <211> LENGTH: 315  
 311 <212> TYPE: DNA  
 312 <213> ORGANISM: Artificial  
 314 <220> FEATURE:

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Input Set : E:\2007-03-13 0269\_seq list\_20070308.txt

Output Set: N:\CRF4\03192007\J572563.raw

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315 <223> OTHER INFORMATION: recombinant DNA sequence for encoding recombinant protein
318 <220> FEATURE:
319 <221> NAME/KEY: CDS
320 <222> LOCATION: (22)..(315)
321 <223> OTHER INFORMATION: recombinant protein containing alpha-factor and partial FIP
323 <400> SEQUENCE: 12
324 cggtagcccg ggatccaaac g atg aga ttt cct tca att ttt act gca gtt      51
325                               Met Arg Phe Pro Ser Ile Phe Thr Ala Val
326                               1           5           10
328 tta ttc gca gca tcc tcc gca tta gct gct cca gtc aac act aca aca      99
329 Leu Phe Ala Ala Ser Ser Ala Leu Ala Ala Pro Val Asn Thr Thr Thr
330                               15           20           25
332 gaa gat gaa acg gca caa att ccg gct gaa gct gtc atc ggt tac tca      147
333 Glu Asp Glu Thr Ala Gln Ile Pro Ala Glu Ala Val Ile Gly Tyr Ser
334                               30           35           40
336 gat tta gaa ggg gat ttc gat gtt gct gtt ttg cca ttt tcc aac agc      195
337 Asp Leu Glu Gly Asp Phe Asp Val Ala Val Leu Pro Phe Ser Asn Ser
338                               45           50           55
340 aca aat aac ggg tta ttg ttt ata aat act act att gcc agc att gct      243
341 Thr Asn Asn Gly Leu Leu Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala
342                               60           65           70
344 gct aaa gaa gaa ggg gta tct ctc gag aaa aga gag gct gaa gct atg      291
345 Ala Lys Glu Glu Gly Val Ser Leu Glu Lys Arg Glu Ala Glu Ala Met
346 75                               80           85           90
348 tcc gac act gcc ttg atc ttc agg      315
349 Ser Asp Thr Ala Leu Ile Phe Arg
350                               95
353 <210> SEQ ID NO: 13
354 <211> LENGTH: 98
355 <212> TYPE: PRT
356 <213> ORGANISM: Artificial
358 <220> FEATURE:
359 <223> OTHER INFORMATION: Synthetic Construct
361 <400> SEQUENCE: 13
363 Met Arg Phe Pro Ser Ile Phe Thr Ala Val Leu Phe Ala Ala Ser Ser
364 1           5           10           15
367 Ala Leu Ala Ala Pro Val Asn Thr Thr Thr Glu Asp Glu Thr Ala Gln
368           20           25           30
371 Ile Pro Ala Glu Ala Val Ile Gly Tyr Ser Asp Leu Glu Gly Asp Phe
372           35           40           45
375 Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
376           50           55           60
379 Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
380 65           70           75           80
383 Ser Leu Glu Lys Arg Glu Ala Glu Ala Met Ser Asp Thr Ala Leu Ile
384           85           90           95
387 Phe Arg
390 <210> SEQ ID NO: 14
391 <211> LENGTH: 624

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RAW SEQUENCE LISTING ERROR SUMMARY

DATE: 03/19/2007

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Input Set : E:\2007-03-13 0269\_seq list\_20070308.txt

Output Set: N:\CRF4\03192007\J572563.raw

Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete,  
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:3,4,5,6,10,11,12,13,14,15



**VERIFICATION SUMMARY**

DATE: 03/19/2007

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Input Set : E:\2007-03-13 0269\_seq list\_20070308.txt

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L:84 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:3  
L:102 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:4  
L:120 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:5  
L:138 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:6  
L:283 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:10  
L:301 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:11